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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/083,793	05/22/98	MURPHY	B 17634-000320

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EXAMINER	
MOSHER, M	
ART UNIT	**PAPER NUMBER**
1648	17

DATE MAILED: 10/05/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
09/083,793	Murphy et al
Examiner	**Group Art Unit**
Mosher	1648

☒ Responsive to communication(s) filed on *6/23/00*

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire *three* month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) *1-94 and 96-143* is/are pending in the applicat

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) *1-94 and 96-143* is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____ .

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). *16*

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

DETAILED ACTION

Claim Objections

Claim 55 is objected to for reasons of record. Applicant argues that base claim 52 does not exclude further addition of a coinfected PIV to supply at least one of the recited N, P, and L proteins. However, this does not make sense, because the base claim requires an expression vector to comprise "one or more polynucleotide molecules encoding N, P, and L proteins". If at least one of N, P, or L is provided by a coinfecting PIV, then what is the point in the parent claim of requiring an expression vector to encode all three proteins (in one or more molecules)? fixed Applicant might wish to consider rewriting claim 52 and/or 55, if the intent is for claim 52 to encompass providing some or all of the NPL proteins from a coinfecting PIV *instead* of providing them from an expression vector (or several expression vectors), or if the intent is to provide one or more of the NPL proteins *in duplicate*, from both an expression vector *and* a coinfecting PIV. It is not clear what is meant by applicant's statement "irrespective of whether the terms 'expression vector' and 'coinfection with PIV' are exclusive or related"; since the interpretation of the terms "expression vector" and "PIV" affect the scope of the claimed subject matter.

Claim Rejections - 35 USC § 112

Claims 48-90, 135, and 136 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which fixed applicant regards as the invention. Claim 52 requires "an expression vector which comprises one

or more polynucleotide molecules encoding N, P, and L proteins". Dependent claim 55 requires that "at least one of the N, P, and L proteins is supplied by coinfection with PIV". This claim language seems to indicate that unmodified PIV is considered an expression vector. If unmodified PIV is considered "an expression vector which comprises one or more polynucleotide molecules encoding N, P, and L proteins", then it is not clear what applicant intends the term "expression vector" to mean, and the metes and bounds of all of the claims involving "expression vectors" are unclear. This is a new grounds of rejection.

Claims 39, 111, 131, 139 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention, for reasons of record. Applicant argues that the rejection of these claims is in error, because the claims refer to exemplary recombinant viruses, each of which has defined mutations provided in the specification, not to JS cp45. However, rcp45 is a recombinant version of JS cp45, and therefore has attenuating mutations in all segments of the genome. How can a chimeric virus replace a genome segment without replacing some of these mutations? How can it be simultaneously chimeric and have the full complement of attenuating mutations present in rcp45? If the intent is to encompass chimeric viruses with specific nucleotides at any or all of a group of specific sites (corresponding to the sites that differ from the wild-type sequence in the reference constructs) perhaps the invention would be better described by specifying the list of sites and nucleotides, like in claims 132+.

Claims 15, 16, 30, 31, 36, 37, 39, 65- 69, 71, 72, 78, 81, 82, 105, 106, 109-111, 113, 114,117, 127, 128, 130, 131, 133, 135, 138, 139 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, for reasons of record. Applicant has indicated an intent to deposit JS cp45 in full compliance with the terms referenced at pages 5 and 6 of the office action. It is not necessary to make the deposit at this stage of prosecution. However, applicant has not provided the required assurance that all restrictions imposed by the depositor on the availability to the public of the deposited material will be irrevocably removed upon the granting of a patent. In the absence of this assurance, the rejection is maintained. In addition, applicant should note the new PTO policy prohibiting amendments after payment of the issue fee (published Federal Register vol. 65, no. 54, pages 14865-14873, March 20, 2000). Since the specification will need to be amended to include specific deposit information, applicant may find it necessary to make the deposit before payment of the issue fee, should this application be allowed.

Claims 1-10, 33-47, 73-87, 88, 89, 94, 97-101, 107-114, 116, 121-126, 129-143 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the chimeric viruses constructed in the working examples, does not reasonably provide enablement for the full scope of chimeras claimed. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. This is a new grounds of rejection. In

applicant's response, applicant admits that "Chimerization, particularly involving the substitution of one virion glycoprotein for its functional counterpart in a different virus, is expected to yield complex anc unpredictable phenotypic effects....the effects of chimerization of replication in vitro or in vivo is unpredictable without specific data such as the results disclosed in Applicant's specification teaching, e.g. a viable PIV1-PIV3 chimera." See response pages 14-15. In view of this admission of the state of the art, it is apparent that achieving a viable virus is unpredictable, and so is achieving a virus which is attenuated and effective as a vaccine. The only use taught in the specification for the claimed materials is for producing a live vaccine. Since achieving an effectively attenuated live chimeric virus is unpredictable without specific data, enablement is seen as limited to those viruses supported by specific data in the working examples.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

Claims 1-4, 6, 7, 10-17, 20, 21, 26, 27, 30, 33-40, 43, 44, 47-49, 52, 54, 56, 57, 59, 61-85, 88-91, 93, 94, 96-116, 118, 120-143 are rejected under 35 U.S.C. 102(e) as clearly anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Belshe et al (5, 869,036). Applicant request clarification, and state that "general statements provided by the Office do not identify which claims are subject to the rejection under 35 USC 102, much less specify what subject matter within these claims is allegedly anticipated by the cited reference." The first sentence of the rejection identifies the claims which are subject to the rejection under 35 USC 102. Applicant correctly states that the rejections are founded on the literal content of the

claims set forth in the patent. The patented subject matter benefits from the legal presumption of validity, and therefore the subject matter of the claims is presumed enabled. Some of the subject matter claimed by applicant is recited in the patent claims, but is not strictly claimed by the patent, for example the patent claims are not drawn to vectors per se but explicitly require vectors. For this reason the patent claims, even if they are not drawn squarely to the same subject matter (e.g. vectors), at least explicitly suggest the subject matter claimed by applicant. In regard to the "general statements", applicant should keep in mind that the time allotted to examine one application is strictly limited, and if applicant chooses to submit claims in large number and great variety (and to strenuously resist efforts to focus examination by restricting the claims), then the time available for writing a claim-by-claim analysis is necessarily curtailed. However, in response to the request for clarification, an extended analysis is provided below.

Patent claim 4 is not drawn to an isolated infective virus, but the patent claim recites a virus which meets each and every limitation of applicant's claim 91. Therefore the virus is at least explicitly suggested by the patent claim, even if the claim is not squarely drawn to the virus per se.

Patent claim 39 is not drawn to an isolated polynucleotide, but recites a vector which meets each and every limitation of applicant's claim 1, 2, 11, 12, 33 except that the patent claim does not specify that the vector is isolated or that it comprises an operatively linked transcriptional promoter and a transcriptional terminator. These are conventional features of vectors, and if the patent claim is considered as failing to meet these limitations by failing to explicitly recite these particular conventional elements, the patent's supporting disclosure makes it

apparent that an isolated vector is intended, and that conventional vector elements such as promoters and terminators are present. Therefore the polynucleotide is suggested if not anticipated.

For the rest of the analysis, this action will focus on how additional details in the patent claims match the details set forth in applicant's claims.

Patent claims such as 37 and 39 recite a group of materials; the members of the group with "... each surface antigen of ....HPIV1, HPIV-2" meet each and every limitation of applicant's claims 3, 4, 40. Since the substitution of HPIV1 or HPIV2 HN and F genes makes a change in the virus serotype, there is " a change in an immunogenic epitope" as in applicant's claim 41. The member of the group with "each surface antigen of ...RSV" meets the particular limitations of applicant's claim 6, 7, 43, 44. The RSV surface antigens also constitute "a protein of a microbial pathogen capable of eliciting a protective immune response in a mammalian host" as in applicant's claim 47. .

Applicant's claim 10 contains the recitation "the isolated polynucleotide of i), ii), or iii) modified by ... a nucleotide insertion, rearrangement, deletion, or substitution specifying a phenotypic alteration selected from attenuation, temperature sensitivity, cold-adaptation, small plaque size, host range restriction, or a change in an immunogenic epitope of PIV." The claim does not place any limitation on the extent of insertion, rearrangement, deletion, or substitution which specifies the phenotypic alteration, therefore the patent's materials fit within the scope of the claimed materials being ones which have been modified with nucleotide insertion,

rearrangement, deletion, or substitution specifying a phenotypic alteration selected from the list.

The patent claims 12, 39 specify a number of regions from cp45; since cp45 has the mutations required by applicant's claims 20, 21, 26, 27, 30, 34-39, the patent meets these claim limitations.

Patent claim 37 recites a cell which meets the limitation of claim 48, 49, and a method which meets the limitations of claims 52, 54, 56, 57, 59. Patent claim also 39 meets the limitations of method claims 61-85, 88-90, because of the same limitations discussed in the vector claims above.

For the rest of the virus claims and the composition claims, the limitations in the rejected claims match the limitations in the vector claims analyzed above; to shorten this office action, these claims are not individually analyzed here.

Applicant argues that the claims of Belshe et are not enabled by the disclosure, and argues that Belshe et al does not provide a written description or enablement sufficient to place this subject matter into the hands of the public. Applicant characterizes the content of the Belshe specification as speculative, and argues that some of the predictions made by Belshe were incorrect. However, a working example is not required for enablement, and applicant has not provided evidence that one skilled in the art would have been unable to practice the patented invention given the disclosure in the patent specification and the ordinary knowledge of those skilled in the art at the time the patent was filed.

If, as applicant asserts, the teachings in Belshe are inadequate to enable the products and methods recited in the patent claims, can applicant point to a process step or starting material that is critical for the success of the invention, and point to where the critical feature is taught by applicant and not taught by Belshe et al? Applicant should be prepared to amend the claims to require that critical step or material, since (if it exists) the omission of the critical feature will amount to a gap between the method steps or a gap between the elements. See MPEP § 2172.01.

In regard to written description, applicant does not indicate how the patent specification fails to provide an adequate written description for the subject matter in the patent claims, and a mere assertion in this regard is not sufficient to overcome the presumption of validity of the patent claims. Again, working examples are not necessarily required; applicant is invited to consult the current revised Interim Written Description guidelines published in the Federal Register on December 21, 1999, and the associated training materials which are available on the Internet at

http://www.uspto.gov/web/offices/pac/writtendesc.pdf

Finally, in regard to incorrect predictions, a patent disclosure is not required to be correct in every detail. Since the details argued in the response are not details required by the rejected claims, the argument is not convincing.

Claims 51 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belshe et al, for reasons of record. Applicant argues that success of making a replication-competent chimeric virus is unpredictable; this argument is convincing as applied to claims 5, 8, 9, 45, 46, 86, and 87, and therefore the rejection of these claims is withdrawn. However, it is maintained

that including all of the required nucleic acid sequences in a single vector would have been obvious.

Claims 18, 19, 28, and 29 are rejected under 35 U.S.C. 102(e) as anticipated by Belshe et al, or, in the alternative, under 35 U.S.C. 103(a) as obvious over Belshe et al in view of Stokes et al (Virus Research 30:43-52, 1993), for reasons of record. Applicant's arguments rely upon a contention that Belshe et al is not enabling; since that argument is not convincing (for the reasons discussed above), the rejection is maintained.

Claims 22-25, 31, 32, 42, 60, 117, and 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Belshe et al in view of Conzelmann (Journal of General Virology 77:381-389, 1996). Applicant's arguments rely upon a contention that Belshe et al is not enabling; since that argument is not convincing (for the reasons discussed above), the rejection is maintained.

Claims 11, 48, 50, 52, 55, 56, 58, 91, and 92 are rejected under 35 U.S.C. 102(b) as being anticipated by Dimock et al (Journal of Virology 67:2772-2778, 1993), for reasons of record. Applicant argues that the reference does not disclose the polynucleotide of claim 1; however, claim 1 is not rejected on these grounds. How is the minigenome of the reference different from the PIV genome modified by deletion as recited in claim 11? How is the defective PIV of the reference different from a recombinant "subviral particles" of claims 91-92, considering the broad definition of "subviral particle" in the specification? In regard to the rest of the rejected claims, applicant is correct in that this rejection depends upon the interpretation of the term "expression vector", an interpretation that is necessitated by the claims as currently drafted. Applicant is

invited to amend the claims which confuse the meaning of the term "expression vector"; since the meaning of "expression vector" is still in dispute, the rejection is maintained.

The rejection of claims 11, 48, 49, 52, 54, 57-59, 60, 91, and 93 under 35 U.S.C. 102(a) as being anticipated by Kato et al (Genes to Cells 1:569-579, June 1996) has been withdrawn in view of the amendments to the claims.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-94 and 96-143 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6, 8-45, 47-50 of copending Application No. 09/458,813. Although the conflicting claims are not identical, they are not patentably distinct from each other because they overlap in scope with the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-94 and 96-143 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-58 of copending Application No. 09/459,062. Although the conflicting claims are not identical, they are not patentably distinct from each other because they overlap in scope with the instant claims.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Copending applications 09/424,628 and 09/586,479 are not available to the examiner at this time, so it could not be determined if provisional double patenting rejections should be made over the claims in those applications.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary E. Mosher, Ph.D. whose telephone number is (703) 308-2926. The examiner can normally be reached on Monday -Thursday and alternate Fridays from 6:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Housel, can be reached on (703) 308-4027. The fax phone number for this Group is now (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

October 2, 2000

MARY E. MOSHER
PRIMARY EXAMINER
GROUP ~~1200~~ 1600